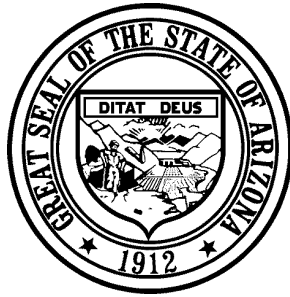


# **REGIONAL RECHARGE PLAN**

## **TUCSON ACTIVE MANAGEMENT AREA INSTITUTIONAL AND POLICY ADVISORY GROUP**



**Arizona Department of Water Resources  
Tucson Active Management Area**

**August 1998**

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Thanks to all of the Tucson Active Management Area staff who contributed to the plan. In particular, this plan was originally drafted by Susanna Eden, who conducted the needs assessment and helped carry the process most of the way towards its conclusion. Jim Henderson helped complete the process and finished writing the report.

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# **REGIONAL RECHARGE PLAN**

## **TUCSON ACTIVE MANAGEMENT AREA INSTITUTIONAL AND POLICY ADVISORY GROUP**

### **I. INTRODUCTION**

#### **A. The Tucson Active Management Area Regional Recharge Planning Process**

The Tucson Active Management Area (AMA) Regional Recharge Planning Process (RRP Process) is a collaborative planning effort initiated by the Arizona Department of Water Resources' (ADWR) Tucson AMA office and Groundwater Users Advisory Council (GUAC). The goal is to develop a coordinated approach to recharge activities in the Tucson AMA and incorporate these goals into a Regional Recharge Plan (RRP, the Plan) which will help guide the process. The Plan addresses a number of needs identified by area water users, including 100-year assured water supply demonstrations, reliability of Central Arizona Project (CAP) water delivery, and increasing the use of renewable water supplies, principally CAP allocations. Recharge will play an important role in meeting these needs, but recharge projects are costly. Collaborative groundwater recharge planning will enhance the region's ability to take advantage of incentives, secure outside support, and improve the cost-effectiveness of regional recharge projects.

The Regional Recharge Planning Process depended on the voluntary participation of two committees of representatives from a broad spectrum of interests. The Regional Recharge Committee (RRC) was made up entirely of technical experts in fields related to recharge. They represented a wide variety of interests, including state, local, federal and Indian government agencies, the University of Arizona, and the private sector. The RRC produced a report in September 1996 (the Regional Recharge Committee Technical Report) which identified the technical issues relating to recharge in the Tucson Basin. The RRC also identified existing and proposed projects in the Tucson AMA and conducted technical and economic analyses of them according to siting criteria. The Institutional and Policy Advisory Group (IPAG), was composed of policy-oriented representatives whose job was to shape and direct the planning process, and to be instrumental in communicating the results to their respective publics. As is shown in the diagram of the RRP Process in Figure 1, these two committees complemented each other in the process of evaluating recharge projects in the Tucson AMA and combining them into the Plan. Members of IPAG and RRC are listed in Appendix A.

The Regional Recharge Plan is designed to be a "living document" which helps guide a process that develops over time in response to new information. The Plan is intended to facilitate the development of projects which meet established criteria. Evaluations of projects included in the

# REGIONAL RECHARGE PLANNING PROCESS

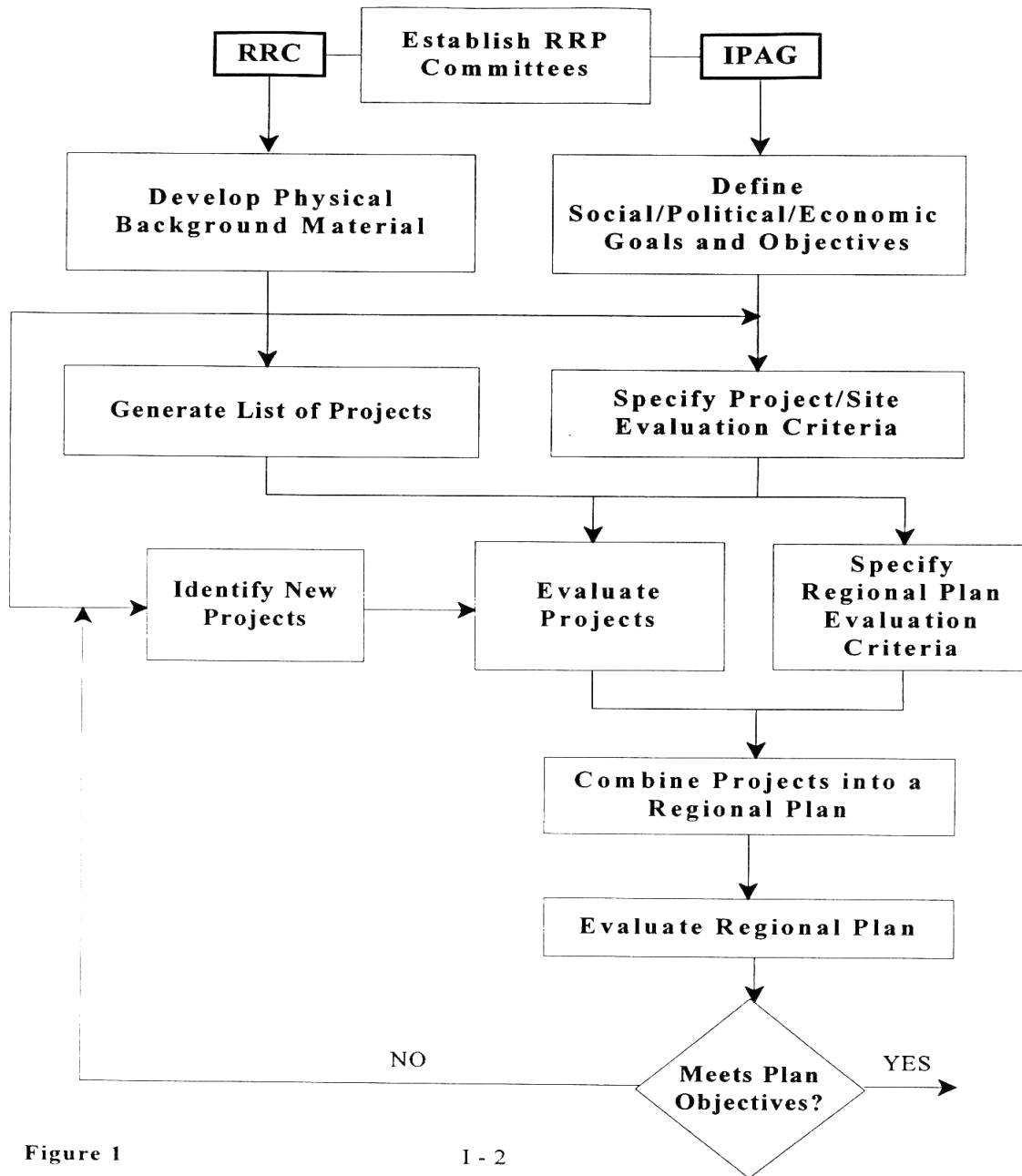


Figure 1

I - 2

plan are also expected to change over time as these and other projects develop. Listed below are the other principles adopted by IPAG to guide the RRP process.

#### **PRINCIPLES:**

- ▶ All entities are welcome to participate in the regional plan.
- ▶ It is essential to develop a united front in soliciting resources and funding from outside the Tucson AMA.
- ▶ All entities will be encouraged to support the Regional Recharge Plan and cooperate in meeting individual and regional water management needs.
- ▶ Project participants are expected to pay project costs in proportion to benefits derived, to the extent this is feasible.
- ▶ Projects will be added to the Regional Recharge Plan as they meet established criteria.

#### **B. Background and Summary of Activities**

In September 1995, with support from the GUAC, the Tucson AMA initiated a regional cooperative process for recharge planning. The process began with the formation of the technical committee, to ensure that the regional recharge planning effort would be based on sound information. The Tucson AMA initially invited 18 hydrologists, engineers and hydrogeologists from government, water providers, the University of Arizona and consulting firms to sit on the RRC. The original list was expanded to 22 because of interest and enthusiasm in the community. All participants donated their time to the process.

The RRC met regularly from January through July of 1996. Their objectives were to 1) achieve an understanding of the physical and institutional setting for recharge in the Tucson AMA, 2) respond to specific issues in the community, 3) develop siting criteria, 4) apply the siting criteria to potential recharge sites around the Tucson AMA, and 5) prepare a report on their results including the identification of needs for further research and information.

Their first task was to define the physical and institutional issues in need of clarification within the committee and in the community at large. The RRC identified eight such issues. When consensus was reached on each issue, conclusions were included in the Committee's report. All findings published in the RRC report were reviewed and approved by the entire RRC.

The RRC then developed criteria for siting recharge facilities. The criteria were based on physical, regulatory and other institutional constraints. The RRC created a list of possible recharge sites that included existing, planned, investigated, and completely conceptual projects. A subcommittee screened the list to eliminate from further consideration those projects judged

unlikely to be implemented within the next 5 years, then described the remaining sites in terms of the established criteria. Of the 34 projects on the initial list, 16 were chosen to be evaluated in greater detail and included in the Committee's report: 11 underground storage facilities (USFs), and 5 groundwater savings facilities (GSFs).

A joint meeting of the RRC and IPAG was held on August 22, 1996, to create a smooth transition from the technical phase to the policy phase of the process. By this time, a final draft of the RRC report had been completed and sent to all members of both committees. The RRC's findings were published in a report and executive summary which was distributed in September 1996.

The first task the IPAG undertook was to define the objectives and principles of the regional recharge plan. The principles were listed in section A above. The following specific objectives were identified for the RRP Process:

- ▶ Provide a forum for regional cooperation regarding recharge activities
- ▶ Maximize the use of renewable water supplies in the Tucson AMA
- ▶ Optimize sharing of recharge, pumping and transmission facilities
- ▶ Expedite selection, testing and construction of groundwater recharge facilities
- ▶ Facilitate equitable access to recharge capacity
- ▶ Provide a background document for the facilities plan that is required by the Arizona Water Banking Authority (AWBA, Bank)

In accordance with these objectives and principles, IPAG chose to base their planning activities on an inclusive assessment of recharge-related needs. The group requested that the Tucson AMA staff prepare a questionnaire and personally interview all parties interested in recharge. IPAG members suggested a list of entities to be interviewed for the needs assessment and emphasized that the focus of questions should be to reveal common goals and highlight points of contention so that they could be resolved.

Information for the needs assessment came primarily from these survey interviews, which were conducted from November 1996 through January 1997. The needs assessment survey was designed to elicit information about goals, concerns, operating constraints, recharge project involvement and interest, and assessments of the relevant issues associated with recharge. An attempt was made to interview representatives from all entities likely to participate in recharge in the Tucson AMA, and most of the entities initially identified as likely participants provided some information in response to the survey.

Besides the discussion of issues, the main products of the needs assessment were lists of goals and concerns about the risks of recharge. The goals and concerns of potential participants formed the basis for developing criteria on which individual projects and the Regional Recharge Plan could be evaluated.

The next step was to evaluate the projects identified by the RRC using these criteria. This allowed projects to be evaluated based on their suitability for achieving objectives. The 16 projects evaluated by the RRC were chosen to undergo the first round of evaluation and ranking based on the regional objectives. Information from the RRC's project evaluations was used to identify the extent to which the project met each criterion. The evaluations were updated as new information became available and all evaluations were reviewed by the IPAG members and their technical advisors. One project (the Tangerine Road basins at I-10 and Tangerine Road) was deleted from the original list of 16 projects; two projects (in-lieu recharge at Picacho and basins on the Pascua Yaqui Indian reservation) were added.

Methods for scoring and ranking projects on the basis of these evaluations were discussed. IPAG members expressed preference for grouping the projects in qualitative categories rather than using numerical ranking. As a result of these discussions, simpler, broader criteria were developed that embodied a regional perspective.

A subcommittee was formed to take the next step towards preparing a plan. This step involved conducting a first-order screening of projects with a focus on getting the largest possible amount of water into storage as quickly as possible. Identified sponsors and institutional endorsements were used as indicators that projects were likely to be brought into operation quickly.

With respect to water management objectives, the subcommittee considered groundwater level decline and subsidence maps to identify areas threatened by continued or increased pumpage in the absence of recharge. In addition, they considered relative (qualitative) rankings based on a group of criteria derived from environmental and water quality objectives.

A draft of the resulting Regional Recharge Plan was circulated in August of 1997. Comments were received for two months, followed by some changes to the language of the plan and the relative groupings of projects. Presentations of a summary of findings in the draft plan at that stage were made to the Tucson GUAC and the AWBA. A final draft of the Regional Recharge Plan was circulated in April 1998.

#### C. The Arizona Water Banking Authority and Recharge Facility Needs in the Tucson Active Management Area

The AWBA was required by its enabling legislation to develop a Storage Facilities Inventory of all existing storage facilities by March 1, 1997 (Arizona Revised Statutes (A.R.S.) §45-2452.(A)). The inventory found that sufficient storage facilities do not exist in the Tucson AMA to meet the needs of the AWBA for the next ten years. This finding triggered the requirement of A.R.S. §45-

2453 that the AWBA develop a plan for additional storage facilities that specifies the type, location, date needed and capacity of storage facilities necessary to meet the needs of the AWBA. The AWBA requested input from the regional recharge planning process. As a result, IPAG submitted a Report to the Arizona Water Banking Authority in November 1997. This document contained advice on meeting groundwater management objectives in the Tucson AMA and included much of the analysis of recharge sites contained in the Regional Recharge Plan. The conclusions and recommendations of the Report to the Arizona Water Banking Authority are incorporated into the Regional Recharge Plan in Chapter X.